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THE CREE NATION'S STAND AGAINST URANIUM DEVELOPMENT IN EEYOU ISTCHEE

SUBMISSION TO THE BUREAU D'AUDIENCES PUBLIQUES SUR L'ENVIRONNEMENT AND THE JAMES BAY ADVISORY COMMITTEE ON THE ENVIRONMENT

ON THE OCCASION OF

THE INQUIRY AND PUBLIC CONSULTATION CONCERNING THE URANIUM SECTOR IN QUEBEC

BY THE GRAND COUNCIL OF THE CREES (EEYOU ISTCHEE)

ON BEHALF OF THE CREE NATION OF EEYOU ISTCHEE

December 15, 2014

2 Lakeshore Road, Nemaska, Québec J0Y 3B0 | Tel: (819) 673-2600 | Fax: (819) 673-2606 | E-mail: cree@cngov.ca | www.cngov.ca

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A. EXECUTIVE SUMMARY

A large proportion of the uranium deposits in Quebec are located in the territory of the Cree Nation, Eeyou Istchee. In recent years, numerous uranium exploration projects have been pursued in Eeyou Istchee, affecting the family hunting grounds of nearly all of the Cree communities. The most advanced project to date in Quebec, Strateco Resources' Matoush project, was located in the Otish Mountains, on the hunting grounds of the Cree Nation of Mistissini, at the crest of two major watersheds which carry water throughout the territory of Eeyou Istchee. When Strateco applied to undertake advanced exploration efforts, with the stated goal of eventually developing a uranium mine at the Matoush site, Cree Nation was forced to take a stand. In 2012, at the insistence of the Cree people, the Grand Council of the Crees passed a unanimous resolution enacting a permanent moratorium on uranium development in Eeyou Istchee.

The Cree Nation's message to the *Bureau d'audiences publiques sur l'environnement* may be simply stated: The Cree Nation does not consent to uranium exploration, extraction or waste emplacement in Eeyou Istchee. The potential health impacts, the serious environmental risks and the heavy long-term stewardship responsibilities that inevitably accompany uranium development activities impose an unacceptable burden on the Cree Nation, both today and for future generations. This is a burden we are not willing to assume.

Three aspects of uranium development are of particular concern for the Cree Nation.

First, uranium mining and tailings present serious health risks and environmental impacts, the full scope and extent of which remain largely unknown. The health risks to local communities arising from uranium mining, processing and waste emplacement are not fully known or properly understood. Further, the available data confirms that uranium development is harmful to the mental health of local communities.

Second, uranium tailings present long-term hazards and must be monitored for thousands of years. Placing such an unknown and immeasurable burden on future generations is incompatible with Cree values, culture and way of life. Moreover, there are no known solutions to the many long-term technological and institutional challenges that necessarily accompany long-term uranium mining waste containment and management.

Finally, the insufficiency of the financial guarantees that are required of uranium mining companies under existing federal and provincial regulatory regimes raises serious concerns about who will be responsible for the long-term risks presented by uranium tailings, including technological failures and unforeseen events if and when these occur. We have seen time and time again that adequate funds are not readily available when such events occur, and the environmental and health burdens thus ultimately fall on the local community.

The Cree Nation's stand against uranium is not a decision that was reached lightly. We are open to partnering with sustainable, responsible development initiatives in Eeyou

Istchee, including mining projects. We recognize that responsible, sustainable development is necessary to maintain and build the economic base of our communities, especially for our youth. But uranium is a special case.

B. WHO WE ARE

> BE IT NOW THEREFORE RESOLVED THAT EEYOU, THE JAMES BAY CREE NATION:
>
> 1. Declares and enacts a Permanent Moratorium on all uranium exploration, mining, milling, refining, transport and uranium mining waste emplacement in Eeyou Istchee;
>
> 2. Authorizes and mandates the Grand Council of the Cree (Eeyou Istchee), the Grand Chief and the Board of the Cree Regional Authority to take all necessary and appropriate steps as may reasonably be required to ensure the full and immediate recognition and implementation of this permanent moratorium in Eeyou Istchee and to give effect to this Eeyou Assembly Resolution.
>
> - Cree Nation General Assembly Resolution, August 8, 2012, Waskaganish

I. The Eeyouch of Eeyou Istchee

We Eeyouch, the James Bay Cree Nation, call our land Eeyou Istchee, which means "The People's Land". We have occupied this land – over 450,000 square kilometers of subarctic forest, rivers and lakes located in what is now the James Bay and Hudson Bay areas of northern Quebec – since time immemorial. To this day, we live on and practice our traditional way of life throughout our entire territory, which accounts for nearly one fifth of the province of Quebec.

Until quite recently, in the mid-20th century, we were a nomadic hunting and gathering society. We have now formally established nine Cree communities: Waskaganish, Eastmain, Wemindji, Chisasibi and Whapmagoostui are located along the east coast of James Bay, and Waswanipi, Nemaska, Oujé Bougoumou and Mistissini are located inland. A tenth Cree community, Washaw-Sibi, is currently being established.

For thousands of years, these lands have sustained us. We are the stewards of this land, and this responsibility is fundamental for us. While much has changed in recent decades, our connection to the land has never faltered. We are not *on* our lands, or even *in* our lands; we are instead *part of our lands and of all the creatures and things of creation that we share them with*.

Our identity as Crees has been shaped by our relationship to our land, the animals and one another. Yet, in a context of accelerated change as a result of major development projects in our territory, we face the challenge of maintaining our identity as Eeyouch. We have worked very hard to preserve this identity, while also insisting upon our right to participate in the opportunities and benefits of development activities in our territory. We maintain our own language, culture, history, legal system, social structure, traditions,

and beliefs. The Cree language in particular is very much alive. It is spoken by almost all Crees and is taught in our homes and schools.

Over thousands of years of coexisting with nature, we have developed a unique system of land and resource management, organized along family and kinship lines and coordinated by the *ouchimaw*, or tallymen. During the fur trading era, this trapline system was adopted by the Hudson's Bay Company, and it developed into the system that remains in use today. In those days, the families who hunted in each area were responsible for tallying the number of beaver lodges in their hunting grounds. These family hunting grounds became known as "traplines", and one person was named its "tallyman", the Hudson's Bay Company term for the Cree *ouchimaw*.

Today, the term "trapline" refers to the family hunting territories that have been handed down through the generations, where Cree families have traditionally practiced their harvesting activities, be it hunting, fishing, trapping, gathering, cutting wood for personal use or other related activities. Each family trapline is under the supervision, leadership and guidance of a tallyman who is responsible for supervising and managing its land and preserving its resources to assure current needs are met, while considering the needs of future generations. This honour is often passed from father to son or son-in-law, or from elder to younger brother, or occasionally to a widow or sister. The tallyman determines how many of each species can be taken, in order to ensure the productivity and sustainability of the trapline both for present and for future generations. The tallyman is also responsible for overseeing and ensuring the just sharing of the wealth of the land and the distribution of its resources among those who use the trapline.

The trapline land management system is recognized and protected under the James Bay and Northern Quebec Agreement (JBNQA). The tallyman's role is also recognized and enshrined under the JBNQA. Recently, these traplines have been mapped and formalized. There are now over 300 traplines recorded in Cree territory, each managed by a tallyman (see Map of Cree traplines in Eeyou Istchee, Appendix A). These traplines cover the entire area of Eeyou Istchee.

The trapline is not the personal property of the tallyman. Rather, the tallyman is a steward. His role is to manage the land and supervise the harvesting activity on that land for the benefit of the collective of families and family members whose ancestors practiced their harvesting activities on those same grounds, in order to ensure the productivity and sustainability of the trapline both for present and for future generations.

Our way of life as Crees remains inextricably linked to our lands. Our people continue to live off the land, and traditional hunting, fishing and trapping activities continue to sustain us, economically, physically and spiritually. According to a recent study, on average, Cree children eat traditional food (game, fish, birds or berries) 12 times per month and adults eat it 17 times per month.[1] The land remains the largest employer of

[1] E Bobet, "Summary", Report on the Nituuchischaayihtitaau Aschii Multi-Community Environment-and-Health Study: Public health report series 4 on the Health of the Population. (Chisasibi QC: Cree Board of Health and Social Services of James Bay, 2013).

our people: in 2012-2013, approximately one in five Cree adults living in Eeyou Istchee were enrolled in the Cree Hunters and Trappers Income Security Program (ISP) and practiced traditional harvesting activities as their primary occupation and way of life.[2] Many other Crees participate regularly in harvesting activities, as the significant membership roll of the Cree Trappers Association (CTA) confirms: in 2013-2014, the CTA reported an adult membership of 6605, accounting for approximately 60% of the adult Cree population of Eeyou Istchee.[3] Traditional harvesting activities remain fundamental to our identity and lives as Crees.

II. A unique legal regime applies in Eeyou Istchee

In 1974, the Cree Nation formally established the Grand Council of the Crees (Eeyou Istchee) as our central political body. In 1978, the Cree Regional Authority (now the Cree Nation Government) was established as the administrative arm of the Cree government. On January 1, 2014, the Cree Nation Government became part of the newly-established Eeyou Istchee James Bay Regional Government. Together, these bodies have the duty and mission to fulfill the vision of the James Bay Cree Nation, in which the Cree people assume their rightful place as true partners in the development of Eeyou Istchee, while ensuring the protection of the Cree way of life.

Any discussion of Eeyou Istchee's unique legal regime must include a discussion of Premier Robert Bourassa's "project of the century", the James Bay Hydro-Electric Development Project. This massive project – which would require the flooding of thousands of square kilometres of our territory, the diversion of many powerful rivers, and the building of numerous dams – would forever alter the landscape of our land and, with it, our traditional practices and way of life. It would drown our traplines, our burial grounds and even some of our communities. And yet, when the project was announced in 1971, and when construction of the roads and dams began soon thereafter, there was no recognition by the governments of our presence in Eeyou Istchee or of our rights.

We fought hard to protect our way of life against the threats posed by this project, but we were unable to prevent the construction from proceeding. As a result of these efforts, however, the governments agreed to negotiations. The result of these negotiations was the James Bay and Northern Quebec Agreement, the first modern

[2] The Income Security Program was established pursuant to the JBNQA to enable Crees to continue to live off the land and to practice harvesting and related activities as a way of life on Cree territory. The program provides income support to Crees for whom harvesting activities constitute the main way of life (those who devote at least 120 days of the year to traditional activities on the land, of which at least 90 days must be spent in the bush and away from their home community). In recent years, membership in the ISP has steadily increased from 1203 enrolled beneficiary units in 2008/2009 to 1357 beneficiary units in 2012/2013 (consisting of 2,675 adults and children). In 2012/2013, the average member spent 239 days of the year on the land, and days paid reached a total of 325,210 for all members. See Cree Hunters and Trappers Income Security Board, *Annual Report 2012-2013* (Quebec, 2013). Available online: http://www.osrcpc.ca/images/osrcpc/rapportannuel/2012-2013.pdf

[3] Cree Trappers Association, *Activity Report 2012-2013* (Eastmain, 2013) at p. 61. Available online: http://creetrappers.ca/wp-content/uploads/2014/06/CREETRAPPERSactivityreport2012-2013.pdf

treaty in Canada, concluded in 1975 between the Cree Nation, the Inuit of Quebec, the governments of Quebec and Canada, and Hydro-Quebec.

We have mixed emotions about the JBNQA. On the one hand, as a constitutionalized treaty, it embodies our people's right to govern, occupy, benefit from, enjoy and fairly share the lands and resources of Eeyou Istchee. It has furnished a foundation for our negotiations with the federal and provincial governments over the past forty years. It established a unique social and environmental protection regime that governs development activities in our territory, and enshrined fundamental principles to guide decision-making about development, including our right to participate as a people in decisions regarding development in our territory, as well as the protection of our way of life.

On the other hand, we did not freely choose to negotiate about our rights and the governance of our lands. To us, these are non-negotiable and inalienable rights that have existed for as long as we have lived off these lands. We have also faced enormous challenges with the governments' implementation of their treaty promises. Once their dams were built, they had no interest in upholding the commitments they had made. It took us nearly thirty years to ensure that the Government of Quebec implemented what it had promised in the JBNQA, and even longer to achieve implementation of Canada's treaty promises.

In recent years, however, we have achieved some important successes. In 2002, we signed the Agreement Respecting a New Relationship Between the Cree Nation and the Government of Quebec, also known as the *Paix des Braves*, a landmark nation-to-nation agreement between the Cree Nation and the Government of Quebec. Under this agreement, the Government of Quebec provides funding for the Crees to assume Quebec's obligations under the JBNQA regarding economic and social development, for a period of 50 years. The amount of funds is indexed to the value of mining, forestry and hydroelectric development throughout our territory. The *Paix des Braves* is premised upon a recognition of the Cree people's right to participate and share in the benefits derived from all of our territory.

In 2008, we concluded the Agreement Concerning a New Relationship between the Government of Canada and the Crees of Eeyou Istchee . Under this New Relationship Agreement, as in the *Paix des Braves*, the Cree Nation assumed certain federal obligations under the JBNQA for a period of 20 years. While it is not a permanent solution to the challenges of non-implementation of treaty promises, this agreement has freed us from the necessity of year-to-year negotiations (and disputes) and allowed the Cree Nation to focus on developing our own administration and institutions of government.

Most recently, in 2012, we concluded a new governance agreement with the Government of Quebec, which came into force on January 1, 2014. This landmark agreement created a formal governance partnership between the Cree Nation and the Jamésiens, and recognized the Cree Nation Government's jurisdiction over a range of

land use planning processes and resource management functions previously exercised by Quebec over a large proportion of Eeyou Istchee.

These nation-to-nation agreements provide a foundation on which the Cree people will continue to build our Nation over the decades to come. These agreements also set out a framework for Cree relations with the provincial and federal governments, and for Cree participation in the governance of our territory.

The legal regime applicable in Eeyou Istchee must also be understood in reference to international law and international human rights principles. The state obligation to incorporate international human rights standards in the interpretation and application of Canadian law is now well-established.[4] In this context, the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP), which Canada endorsed in 2010, is a particularly important international legal instrument. UNDRIP codifies the minimum universal standards for the protection of indigenous peoples' human rights by all states, not by creating new rights, but rather by affirming a "contextualized elaboration of general human rights principles and rights as they relate to the specific historical, cultural and social circumstances of indigenous peoples".[5]

International law affirms the Cree Nation's right of self-determination – the right as a people to "freely determine their political status and freely pursue their economic, social and cultural development".[6] In other words, it affirms our right to maintain and strengthen our own institutions, cultures and traditions, and to pursue development on our lands in keeping with our own needs and values. It promotes the full participation of Aboriginal peoples in all matters that concern us and supports our right to pursue our own goals in economic and social development.

The UNDRIP also affirms that the consent of aboriginal peoples must be obtained before development proceeds on their territories. This fundamental requirement is enshrined in Article 32, which provides that "Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources." Article 32 also affirms the state obligation to "obtain [indigenous peoples'] free and informed consent prior to the approval of any project

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[4] See, for example, *R v. Hape*, [2007] 2 S.C.R. 292, at para. 39; *Baker v. Canada*, [1999] 2 S.C.R. 817, at para. 70.

[5] S. James Anaya, *Report of the Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people: Promotion and protection of all human rights, civil, political economic and cultural rights, including the right to development*, UN GAOR, 9th Sess., UN Doc. A/HRC/9/9 (2008), para. 86.

[6] *United Nations Declaration on the Rights of Indigenous Peoples*, GA Res., UN GAOR, 61st Sess., UN Doc. A/61/L.67/Annex (2 October 2007); *Universal Declaration of Human Rights*, GA Res. 217 (III), UN GAOR, 3d Sess., Supp no. 13, UN Doc. A/810 (1948); *International Covenant on Civil and Political Rights*, 19 December 1966, 999 U.N.T.S. 171 (entered into force 23 March 1976, accession by Canada 19 May 1976); *International Covenant on Economic, Social and Cultural Rights*, 16 December 1966, 993 U.N.T.S. 3 (entered into force 3 January 1976, accession by Canada 19 May 1976).

affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources".

The concept of free, prior and informed consent is also repeated in Article 29, which is of particular relevance in the context of uranium mining and the large amounts of radioactive waste it inevitably produces. This article provides:

> States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the lands or territories of indigenous peoples without their free, prior and informed consent."

Our people have informed ourselves about uranium development and the legacies such activities will leave on our land. We do not like what we have learned. And we do not consent.

III. The Cree Nation's vision of development in Eeyou Istchee

The modern challenge facing the Cree Nation is to protect and maintain our identity as Crees, and to continue to fulfill our role as stewards of this land in this rapidly changing world. Eeyou Istchee is a beautiful and for the most part pristine land that has only come under significant development pressure over the past forty years. The Cree Nation recognizes that there are considerable benefits associated with the opening of our territory to development. At the same time, however, the challenges associated with development are numerous and cannot be ignored.

The pressure of large-scale development was first felt by our people in the 1970s with the James Bay Hydroelectric Project. In some ways, our people have benefited from hydro-electric development on our lands. But there have been serious social and environmental impacts, including the flooding of sacred cultural locations, the effects on the migration patterns of caribou and other wildlife, the destruction of the forests, and the relocation of our communities. One very serious impact has been the high levels of mercury in fish. Our vision for the future development of our territory is grounded in these past experiences.

In the Cree Nation's vision of responsible development, our territory is not simply seen as repository of raw material for future development initiatives. While our land is sparsely populated, it is not empty. This point bears repeating, as it is often overlooked. The Cree vision of development recognizes that we continue to use the entire territory of Eeyou Istchee for our traditional activities of hunting, fishing and trapping.

The Cree vision of development also recognizes that Cree occupation of the territory is not limited to traditional activities, nor is it limited to the Cree communities themselves. Through the JBNQA, the 2002 *Paix des Braves* with Québec, the 2008 New Relationship Agreement with Canada, the Eeyou Marine Region Land Claims Agreement of 2010, and the 2012 agreement regarding governance in the Eeyou Itschee James Bay territory, the Cree Nation has assumed various responsibilities relating to governance, education, health and social services, culture and language,

communications, economic development, tourism, police, natural resources, environmental and social protection regimes and hunting, fishing and trapping. Many of these functions extend well beyond the Cree communities.

Moreover, while continuing to practice and protect our traditional culture, the Cree Nation has become increasingly involved in other forms of economic activity in Eeyou Istchee. Through our holding company, Cree Economic Enterprises Company Ltd. (CREECO), and its operating subsidiaries, such as Air Creebec, Cree Construction and Development Company Ltd. and Valpiro, we are an economic presence felt throughout the territory and beyond. We have also concluded a number of agreements relating to resource development of different kinds, including energy, mining and forestry. We have established a track record as reliable partners in the sustainable development of northern Québec, for the benefit of our people and all Québeckers.

In this way, the James Bay Crees are not just actors in our home communities, but across our territory and beyond. Nor are we, as is sometimes alleged, "anti-development". On the contrary, we recognize that responsible, sustainable development is necessary to maintain and build a viable economic base for our communities, especially our youth. We support development when it is responsible and sustainable, when it benefits our people and when it does not cause undue harm to our land or our people. We support development that is undertaken with our participation and consent.

To this end, the Cree Nation Government has developed the Cree Nation's Mining Policy, which outlines our approach to development in Eeyou Istchee. The guiding principle clearly states our position on natural resource development:

> The Cree Government will support and promote the development of mineral resources within the territory of Eeyou Istchee that provides long term social and economic benefits for the Cree and that addresses sustainable development in compliance with the environmental and social protection regime of the JBNQA and that is compatible with the Cree way-of-life and protection of Cree rights in the Cree Territory.[7]

Responsible development is one of the pillars of our Mining Policy. For the Cree Nation, responsible development includes (among others):

- respect and recognition of the importance of the system of Cree family land use and occupation of the whole territory;
- the administration of natural resources for the needs of the Crees without compromising the needs of future generations; and
- the application of the precautionary principle in all decision-making processes related to natural resources.

[7] Grand Council of the Crees, *Cree Nation Mining Policy*, Policy 2010-7 at p. 10, available at http://www.gcc.ca/pdf/ENV000000014.pdf.

As mentioned above, Eeyou Istchee is subject to a unique environmental and social protection regime pursuant to the JBNQA. This regime provides for Cree participation in decision-making regarding development within our territory. Impact Benefit Agreements have also been important tools to manage and guide development in our territory. The *Paix des Braves* specifically mentions that the Government of Quebec will facilitate and encourage agreements between the Crees and proponents of mining projects. Such agreements are necessary to ensure that the social, cultural, environmental and economic issues are properly provided for and agreed to prior to mining development.

Underlying these principles, and the land management tools and agreements mentioned above, is the concept of consent: the Cree Nation's consent is required for major development projects in Eeyou Istchee. We must be real partners in the development of our territory's vast potential, and our rights must be respected, particularly when we make an informed, community-led decision that a particular form of development is incompatible with our culture, values and way of life.

IV. The Cree Nation's stand against uranium development in Eeyou Istchee

The Cree Nation stands together and speaks with one voice in its opposition to uranium exploration and uranium mining in Eeyou Istchee. In August 2012, the Cree Nation enacted a permanent moratorium on uranium mining and other uranium exploration activities in the Eeyou Istchee territory, in recognition of the risks uranium poses to the environment and to human health (Appendix B). As the resolution explains, Cree opposition to uranium development is based on the environmental and health risks that uranium activities create, which place a burden on future generations that the Cree Nation is not prepared to assume. The permanent moratorium was enacted unanimously by all the Cree communities in Eeyou Istchee. Our position is clear: we do not consent to uranium development on our lands.

The Cree Nation ask that this united voice be heard and heeded, and that our rights and choices be respected and recognized by the Commission. For the reasons set out below, we declare that no uranium activity should take place in our territory, Eeyou Istchee.

C. URANIUM MINING AND TAILINGS PRESENT SERIOUS HEALTH RISKS AND ENVIRONMENTAL IMPACTS

> … Radiation exposures to the general population can occur from airborne dispersal of radioactive particulates to off-site locations, including subsequent resuspension, or gases from mining operations, processing facility exhausts, waste rock, wastewater impoundments, or tailings. Exposures may also occur by release of contaminated water or leaching of radioactive materials into surface or groundwater sources where they may eventually end up in potable water supplies. Radon and its decay products can also be transported off-site, especially from tailings or waste areas, in the form of radon gas or radon decay products. The potential for internal radiation exposure from drinking water contaminated with radionuclides (e.g., 226Ra, 228Ra, 230Th, uranium) that have been leached or otherwise released from tailings or other wastes is a common health concern for the public... Another health concern for people living near mines and processing facilities is the potential for off-site radiation exposure from atmospheric deposition of "fugitive" ore or tailings dust (e.g., dust containing uranium, 226Ra, 230Th, 210Pb, 210Po, and other radionuclides). Even though such fugitive dusts are extensively diluted once they leave the plant or mine boundaries…, accumulation in the food chain can occur with subsequent human consumption of wild or domestic animal meat, fish, or milk.[8]

The environmental and health risks associated with uranium mining operations are significant, and must weigh heavily in any responsible assessment of this industry.

Open-pit and underground mining of uranium brings to the surface ore that bears significant concentrations of naturally occurring radioactive elements and potentially toxic heavy metals — material that would otherwise have remained undisturbed and distributed within the earth's crust. The waste that is inevitably produced by uranium mining is substantial, and has proven exceedingly challenging to manage over time. The management of the huge amounts of radioactive waste residues, or tailings, generated by uranium mining and milling is the primary environmental burden that must be considered in the assessment of uranium mining. While it is well-known that there are serious physical and health risks associated with uranium mining, processing and waste emplacement – on both mine workers and local populations – the extent of the health risks to local populations of present-day uranium mining, milling and waste management operations remains largely unknown and uncertain.

I. Uranium mining, processing and waste emplacement presents serious risks to the environment

Only a small fraction of the ore mined in a uranium extraction operation contains uranium oxide. The remaining tailings from the milling process are normally dumped as sludge into special piles. In the past, these piles were often abandoned, and posed – and, in many cases, continue to pose – serious threats to public health and safety and to the environment. Engineered structures which were built with the purpose of isolating and containing tailings have frequently eroded over time and allowed radioactive waste

[8] National Research Council, "Uranium Mining in Virginia", (Washington: National Academies Press, 2012) at, p. 131.

to leak into the surrounding ecosystem, contaminating nearby groundwater and surface water and exposing entire communities to dangerous levels of radioactivity.

The hazards from just one mine accident or incident can be significant and long-lasting. The 1979 collapse of a tailings dam in Church Rock, New Mexico, for instance, brought contaminants 130 kilometres downstream to the Navajo Nation, and required four decades of clean-up efforts.[9] The Cree Nation has recent experience with such spills: in 2008, a spill at the Opemiska Copper Mine led to the contamination of the Obatagamau and Chibougamau rivers, which contaminated the drinking water of the local communities.

Water contamination is a serious concern for the Cree Nation. The Otish Mountain area, where Strateco Resources' advanced uranium exploration project and a number of other uranium exploration projects are located, provides water which feeds into Lake Mistissini, Quebec's largest fresh water lake. The waters of Lake Mistissini drain into Rupert River. Part of the waters of the Rupert River flow to Nemaska, and then on to Waskaganish. Moreover, as a result of the hydroelectric development of our territory, the watersheds are also heavily interconnected. A portion of the waters of the Rupert River have been diverted, and now flow into the Eastmain River, and then ultimately into the La Grande River, which flows past Chisasibi. This is not just the water that eventually reaches our communities; it is also the water on which the animals, fish and plants rely. Waters contaminated by radionuclides and other heavy metals can have far-reaching consequences on our communities.

Uranium and its decay products as well as other contaminants can also enter the local food chain of both animal predators and the local population. As a result, exposure to contaminants can have an effect on the traditional harvesting and consumption of country foods. In Saskatchewan, for instance, tests found the presence of radioactivity in lichens, moss, trees, fish and caribou, which constitute the staple diet of local First Nations populations.[10]

Also in Saskatchewan, at Cameco's decommissioned Beaverlodge Mine and Mill Site in Uranium City, fish consumption advisories have been put in place due to high levels of exposure to contaminants.[11] The local population is therefore limited in its consumption

[9] Paul Robinson, hearing held 10 September 2014 (evening session), TRAN30, p. 63, lines 2454-2482 See also : Paul Robinson, "Environmental Issues and Challenges associated with Uranium Exploration and Uranium Mill Tailings : Invited Statement. (Southwest Research and Information Center : Albuquerque, 2014) Available online at : <bape.gouv.qc.ca/sections/mandats/uranium-enjeux/documents/INFO13_Annexe.pdf>.

[10] P.A. Thomas and T.E. Gates. "Radionuclides in the lichen-caribou-human food chain near uranium mining operations in northern Saskatchewan" (1999) 107(7) *Canadian Environmental Health Perspectives,* 527-537.

[11] Canadian Nuclear Safety Commission, "Record of Proceedings, including Reasons for Decision in the matter of Cameco Corporation's Application to Renew Waste Facility Operating Licence at Decommissioned Beaverlodge Mine and Mill Site, April 3-4, 2013", para 51-53.

of fish from Beaverlodge Lake due to unexpectedly high exposure levels in fish. These examples highlight the legitimate concerns of the Cree regarding impacts on our traditional way of life and cultural practices.

While the radiological liabilities present in uranium tailings are of serious concern, the equally concerning impact of toxins cannot be neglected. Selenium is an example of the significant danger associated with non-radiological heavy metals. High levels of selenium have been found in fish within the vicinity of uranium mines in Saskatchewan.[12] Exposure to selenium has resulted in deformities and significant reproductive failure in the fish population.[13] Despite the major risks associated with selenium, it is not currently listed as a dangerous substance in Canada's *Mining Metal Effluent Regulations*.[14] Thus, despite the fact that nearly a decade has passed since the effects of selenium on fish became known, it remains unregulated, and there is still limited knowledge about the full extent of its effects.[15]

The lack of knowledge about selenium and its effects begs the question: what else are we unaware of? What other unknown hazards to the environment and to wildlife and plants are associated with uranium mining and yet remain unregulated? The CNSC and the mining industry tout "best practices" and "best available technology" but there is still so much that we do not know about the effects of uranium mining and milling. How can the local population be expected to accept a risk when the extent of that risk is unknown?

There can be no question that the experience of uranium mining, in Canada and elsewhere, includes many significant examples of long-lasting environmental damage. We are told that present-day methods are different. However, the full spectrum of environmental effects – and the full scope of such effects – associated with present-day uranium mining, processing and waste emplacement techniques remain largely unknown. This is partially due to the fact that uranium has long-term impacts and the results of current "best practices" have not been monitored long enough to ensure their efficacy in the long term. The current "best practices" are still in their infancy – and many of the "best" practices that were employed mere decades ago are now acknowledged to have permitted unacceptable environmental damage. Moreover, under the regulatory structure created by the *Nuclear Safety and Control Act*, the CNSC

[12] Canadian Nuclear Safety Commission, , "Record of Proceedings, Cameco's application for a waste facility operating licence at the former Beaverlodge uranium mine site, April 5, 2005".

[13] Canadian Nuclear Safety Commission, hearing held 10 September 2014 (afternoon session), p. 11, lines 405-408

[14] *Mining Metal Effluent Regulations*, SOR/2002-222, s 3, Schedule 4. It is worth noting that the CNSC has included limited selenium levels as a possible condition in its licensing, but these conditions are not legislated or consistently regulated.

[15] In the hearings before the BAPE, the CNSC thus admitted that the science on selenium had not been sufficiently developed to know that it could pose such a serious risk. Canadian Nuclear Safety Commission, hearing held 10 September 2014 (afternoon session), TRAN27, p. 40, lines 1532-1538

places a lot of faith in the mining companies, whose duties are ultimately owed to their shareholders and not to the environment, the regulators or the local stakeholders.

II. Uranium mining, processing and waste emplacement present well-known health hazards, but the full scope and extent of those hazards remain unknown

Much is unknown about the full extent of the immediate and long-term health impacts on communities living, hunting, trapping, fishing, eating and drinking within proximity to a uranium mine, mill or waste emplacement site. As the *Institut national de la santé publique du Québec* (INSPQ) pointed out in its recent study on the health impacts of uranium mining, there is insufficient data to conclude that uranium mining, processing and waste emplacement do not cause serious physical health risks to proximate populations.[16] The available data confirms, however, that uranium mining has important effects on the mental health of local communities, and suggests that the risks to physical health are real and significant.

a. The health risks to local communities arising from uranium mining, processing and waste emplacement are not fully known or properly understood

The health effects of radiation exposure are well-known and documented, and, as such, will only be briefly discussed in these submissions. Radiation can damage or kill cells. If radiation damages a cell's DNA, this damage may initiate cancer. The higher the dose, the higher the risk of cell damage. While radon and its radioactive decay products are generally the most well-known and concerning radionuclides, they are not the only concerning radionuclides associated with uranium mining and processing.

Radiation exposures resulting from the off-site release of radionuclides generated by uranium mining operations present a risk to local communities. As it stands, communities located near uranium deposits are already generally subjected to higher background doses of radon, for instance, than the average Canadian. The potential for adverse health effects increases if there are uncontrolled mining-related releases as a result of extreme weather events (for instance, floods, fires, earthquakes) or human error.

Further, as a result of their long half-lives, certain radionuclides that are present in uranium tailings will provide a constant source of radiation for thousands of years, substantially outlasting the current Canadian regulations for oversight of processing facility tailings. If not adequately controlled, these radionuclides and their decay products can contaminate the local environment, particularly by seeping into water sources and thereby increasing radionuclide concentrations in the water supply of local

[16] *Les Impacts Sanitaires en Lien Avec Les Projets Uranifères Nord-Côtiers,* (Québec: Institut National de Santé Publique du Québec, 2013) at pp. 208, 269. Available online : <inspq.qc.ca/pdf/publications/1714_ImpactsSaniProjetsUraniNordCotiers.pdf>.

communities. Drinking from local water sources, in turn, can lead to a risk of cancer that is higher than the risk of cancer that would have existed had those radionuclides not been released into the environment.

Finally, much is still unknown about the health effects of radionuclides. For instance, the risks associated with low doses of ionizing radiation, that is, doses of less than 200 mSv, remain unclear. While the impacts of high and moderate doses of radiation are better understood, the risks associated with low doses are generally extrapolated from the high-dose data. There is little to no specific, accurate data regarding the impacts of low doses of radiation on communities living and using land near uranium mines, mills or waste emplacement sites.

b. The available data confirms that uranium development is harmful to the mental health of local communities

While the physical health effects of uranium mining remain uncertain, the available data confirms the negative psychological effects of uranium mining on local communities. According to the INSPQ, there are a number of negative impacts on the psychological, social and socioeconomic health of local communities, particularly local aboriginal communities in light of their values, their way of life and their connection to the land.[17] The INSPQ found that there are clear psychological effects associated with uranium mining, and that these can in turn cause serious physical ailments. According to the INSPQ, this is largely due to what they term "*nucléarité*", that is, a community's preoccupation with the health risks and other hazards associated with uranium mining. The INSPQ found that *nucléarité* can have a serious impact on the mental health of local residents.[18]

As many explained during the BAPE's hearings in Eeyou Istchee, our experience teaches that we Crees are happier and healthier when we are able to engage in traditional practices, and hunt, trap and fish on our land. Uranium mining may well have a detrimental impact on the activities practised by Crees on our lands.

Finally, the INSPQ found that proximate communities may be negatively impacted by uranium mining because it often engenders conflicts, protests and social resistance. Finally, the INSPQ found that aboriginal communities (and aboriginal community members) not only experience a disproportionate amount of the negative psychological and social effects associated with uranium development, but they also remain disproportionately left out of any socioeconomic benefits enjoyed by the larger community.[19]

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[17] *Les Impacts Sanitaires en Lien Avec Les Projets Uranifères Nord-Côtiers,* (Québec: Institut National de Santé Publique du Québec, 2013) at p. 191.

[18] *Les Impacts Sanitaires en Lien Avec Les Projets Uranifères Nord-Côtiers,* (Québec: Institut National de Santé Publique du Québec, 2013) at p. 194.

[19] *Les Impacts Sanitaires en Lien Avec Les Projets Uranifères Nord-Côtiers,* (Québec: Institut National de Santé Publique du Québec, 2013) at p. 201.

III. Conclusion

There are physical and mental health hazards to both humans and animals as a result of uranium mining, but the extent of these hazards remains largely unknown. Uranium mining sites present a number of pathways for contamination. Animals may also be exposed to radioactive elements and toxic metals by ingesting other animals, fish and plants, or by drinking or bathing in contaminated run-off water. Moreover, a number of the radionuclides present in the uranium decay chain could contaminate local fish, animals and plants. These staples of the Cree diet may also be exposed to toxic substances such as selenium, which affects the reproductive capacities of fish.

These risks are not limited to the boundaries of the mine site. As mentioned above, large watersheds are at risk of contamination. As was confirmed by Dr. Jacqueline Garnier-Laplace of the *Institut de radioprotection et de sureté nucléaire*, the boundaries of contamination are unclear, and depending on site-specific properties, could extend far beyond the CNSC's assurances of 2 km to 10 km.[20]

The Cree people continue to participate in traditional activities in large numbers, including trapping, hunting and fishing. We are at our healthiest when we are on the land. As was confirmed by Dr. Robert Carlin, the interim director of the Cree Health Board, the Cree Nation is currently facing a number of health epidemics, including high rates of diabetes, which will be exacerbated if we are unable to maintain our traditional way of life.[21] The risks of uranium mining are simply too great, and the uncertainties too many, for the Cree Nation to consent to this form of development.

[20] Jacqueline Garnier-Laplace, hearing held 22 September 2014 (morning session), TRAN47; See also *Rapport du groupe de travail de la Direction de santé publique de la Côte-Nord sur les mines d'uranium*, Government of Quebec, (Quebec: 2014) at p. 22.

[21] Dr. Robert Carlin (Interim Director of Public Health for the Cree Health Board), hearing held 4 September 2014, p. 81, lines 2316-3224

D. URANIUM TAILINGS PRESENT LONG-TERM HAZARDS AND MUST BE MONITORED FOR THOUSANDS OF YEARS

> Experience in Member States has shown that sites with radiation legacies and liabilities often cannot be remediated to residual levels of radioactivity that are below concern. As a result, they cannot be released for unrestricted use. Residual contamination, buried wastes and other hazards may remain after cleanup has been completed, for several reasons: technical limitations, economic feasibility, worker health and safety issues, prevention of collateral environmental impacts, or because they are, in fact, engineered near surface repositories. […] With long lived radionuclides present, maintenance of institutional control will probably be required for unlimited periods of time.[22]

Uranium tailings will remain radioactive and dangerous for time periods that defy human understanding and experience. This reality presents insurmountable challenges. The time period over which uranium tailings will need to be monitored – which amounts to hundreds of years over the medium-term and hundreds of thousands of years over the long-term – results in uncertainties and unknowns, and makes appropriate long-term stewardship needs impossible to predict. Adequate planning so as to manage and limit the burden on future generations is simply impossible.

There are many unknowns regarding the full extent of the risks associated with uranium mining and processing. The long-term management and stewardship issues associated with uranium tailings present the most glaring examples of the limited nature of existing experience and knowledge. These long-term risks are unique to uranium mining and processing. No other form of development or mineral extraction presents the same challenge of managing and monitoring the radiological liabilities present in uranium tailings. This challenge will remain for thousands of years, far beyond the limits of any regulatory regime, no matter how well-conceived that regime may be.

According to the International Atomic Energy Agency (IAEA), "the prime objectives for remediation actions are the *abatement* of actual health risks and environmental impacts and the *reduction* of risks to human and other receptors in the longer term."[23] These objectives highlight the overriding and unique challenge associated with uranium mining: the risks it engenders *never actually go away*. They may be managed, but they will always require management. The length of the long-term management phase depends on the half-lives of the decay products in the tailings. Where radionuclides with long half-lives – such as many of the isotopes of uranium, thorium and radium – must be monitored, the stewardship period will effectively last forever. As a result, long-term management and the resulting stewardship responsibilities must be at the heart of any responsible discussion regarding the development of the uranium mining and processing industry in Quebec.

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[22] International Atomic Energy Agency, "Management of Long Term Radiological Liabilities: Stewardship Challenges", *Technical Reports Series*, no. 450, (Vienna: 2006), Foreword. Available online: <http://www-pub.iaea.org/MTCD/Publications/PDF/TRS450_web.pdf>

[23] International Atomic Energy Agency, "Management of Long Term Radiological Liabilities: Stewardship Challenges", *Technical Reports Series*, no. 450, (Vienna: 2006), p. 44 (emphasis added).

For the Cree Nation of Eeyou Istchee, the long-term management of uranium tailings and the stewardship obligations thereby imposed on future generations are fundamentally incompatible with Cree values, culture and way of life. This incompatibility is one of the primary reasons why the Cree Nation has refused to permit uranium development on its territory. However, the long-term technological and institutional challenges that accompany the long-term management of uranium tailings have also weighed heavily in the Cree Nation's decision to oppose uranium exploration, mining, processing and waste emplacement in Eeyou Istchee.

I. The burden that uranium mining imposes on future generations is incompatible with Cree values, culture and way of life

The Cree Nation has occupied our territory of Eeyou Istchee since time immemorial. Our people continue to practice our traditional activities and maintain our traditional values, culture and way of life. We respect the land, and value the right of our children and their descendants to enjoy all the land has to offer. Our adherence to the concept of intergenerational equity and our insistence upon the precautionary principle are borne of that respect. Our people have made the informed decision to refuse uranium development projects on our territory. Without buy-in from the local community, stewardship efforts cannot be successful.

a. Uranium development does not respect the concept of intergenerational equity

Our connection with our land, and its waters, animals, plants, and inhabitants is not abstract or academic – it is at the core of our way of life, as Eeyouch. This is the foundation for our responsibility to protect and conserve the land, so that this way of life will continue for generations to come. Our connection with our territory forms the basis for our opposition to uranium. The health, environmental and social risks of uranium mining to the ecosystem, our water resources and our way of life are too great to be acceptable.

Intergenerational equity in environmental matters is an important aspect of Cree culture and plays a role in the decisions we make about environmental issues. We believe that we inherit the Earth from previous generations and have an obligation to pass it on to future generations. This concept is not merely theoretical – our people continue to live off the land, to eat country food and to drink water from the lakes, rivers and streams of our land. We hope and intend that our children and our children's children will continue to practice these traditions. We do not wish to impair the ability of future generations of Crees to meet their needs. Our sense of moral and cultural obligation to future generations of Crees is a fundamental aspect of our identity.

b. Uranium development is inconsistent with the precautionary principle

The precautionary principle dictates that where great uncertainty and possibly grave dangers reside, risks should not be taken. This principle goes hand-in-hand with the concept of intergenerational equity, and should be adopted when rendering a decision about the viability of uranium development in Eeyou Istchee and in Quebec more generally. The precautionary principle reminds us that absence of proof of danger is not the same as proof of absence of danger. Where such uncertainty exists and there is a significant possibility that grave dangers may result, risks should not be taken.

The precautionary principle is based in international law, and has also been recognized by Canadian courts.[24] Principle 15 of the *Rio Declaration on Environment and Development* states:

> In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.[25]

Actions carrying a possible, but as of yet undemonstrated, risk of serious and long-lasting damage to future human interests should not be permitted. The principle is founded on ethical considerations that become even more important when technological progress cannot be regarded as purely beneficial and where outcomes cannot be determined in advance.

The precautionary principle places on those wishing to impose the risks the onus of proving that uranium development is not harmful to future human interests. The proponents of uranium development are unable to discharge this onus. To the contrary, throughout the BAPE hearings, it has been suggested by government representatives and those representing the mining industry that uranium mining should be permitted to proceed because in their view there is no conclusive and overwhelming evidence that it presents a danger at the present time. These attempts to reverse the onus and sidestep the long-term issues must be resisted.

In light of the poorly understood risks and future burdens associated with uranium mining, the precautionary principle dictates that uranium development should be avoided.

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[24] *114957 Canada Ltée (Spraytech, Société d'arrosage) v. Hudson (Town)*, [2001] 2 S.C.R. 241, at para. 32.

[25] *Report of the United Nations Conference on Environment and Development*, UNGAOR, 1992, UN Doc A/CONF.151/26 (Vol. I), Principle 15.

c. Stewardship is not effective without community buy-in

In order for long-term monitoring and supervision of tailings to be effective, local communities must be actively involved in and must assume responsibility for stewardship. Building and maintaining the political and economic partnerships necessary for effective stewardship depends on the relationships that the different stakeholders develop and maintain amongst themselves and with the site. Without these ongoing partnerships, the relevant knowledge for stewardship will not be maintained, and the motivation for long-term engagement will not be sustained.

Establishing a tailings management area that will require stewardship for thousands of years near a community that has refused to grant social license to the project will exacerbate all of the challenges described in this section. Ultimately, the local community bears the risks associated with uranium development, including technological failure. As such, the local community must play a role in risk management and risk communication, in order to ensure that future generations are informed of the existence of the site and the risks associated with it. The efficacy and durability of this stewardship role depend on community buy-in.

II. There are no known solutions to the many long-term technological challenges posed by uranium tailings

Uranium tailings present radiological liabilities that will require maintenance and supervision for thousands of years, far beyond the lifespan of engineered structures currently existing today. Our ability to manage uranium tailings in the long-term is uncertain at best, since we do not have sufficient experience with uranium tailings containment methods to be assured of their stability over hundreds of years. In Canada, the little experience we do have comes from Saskatchewan, where the ore grades, geotechnical and hydrogeological conditions are extremely different from the conditions in Quebec. Quite simply, there exists no currently-known containment method that can adequately isolate and contain tailings for hundreds of thousands of years until the tailings are no longer radioactive. Moreover, recent events such as the Mount Polley tailings spill call into question even the relatively short-term durability of tailings containment methods, and raise serious questions about how little we actually know about managing uranium tailings in the long-term.

The uncertainties presented by our limited knowledge about and experience with long-term containment technology are compounded by our inability to accurately predict how natural or engineered containment methods will hold up over time. Today's best containment methods are not foolproof, and the risk of failure remains present, as a result of technological and human errors or environmental disasters. If and when such failures do occur, there is inadequate funding set aside to remedy the resulting damages, raising questions about who will be responsible for cleaning up the mess left behind. These realities constitute a fundamental challenge to the confident pronouncements that are offered by government regulators and mining proponents regarding the supposed safety of uranium mining.

a. The durability of today's isolation and containment methods is uncertain at best

During the Phase II hearings, a number of ministry representatives and experts explained that there are essentially two modern methods for isolating and containing uranium tailings: the "engineered" structure – which typically involves containing tailings behind a man-made dyke or dam – and the "natural" structure – which consists of either backfilling an open-pit mine with uranium tailings or dumping tailings in a lake legally re-designated for that purpose.

While the "natural" structure is the preferred practice, it is an unlikely solution for Quebec. As was confirmed during the hearings, there are no conveniently-located open-pit mines in Quebec available to be backfilled.[26] Moreover, while future uranium mines in Quebec may be open-pit, the volume of tailings generated by the mine will far exceed the volume available to be filled.[27] Finally, the Quebec Government has stated, both during the Phase II hearings and in Directive 019, that it does not intend to permit lakes to be re-designated as tailings management areas.[28] As a result, engineered structures would appear to be the only available option for tailings management in Quebec.

When one considers the timeframes at issue, the durability of engineered structures is evidently insufficient. Any engineered solution to contain contaminants or to reduce exposures, whether on-site or at an external disposal facility, will only have a limited period of useful life. Natural forces will gradually degrade structures, and continuous or periodic supervision and maintenance will be required. Methods and technologies to predict the long term behaviour of engineered structures are still in their infancy and remain largely unproven. Moreover, the limited experience over recent decades demonstrates that the remediation of uranium tailings containment structures almost invariably presents significant and unexpected costs and technological challenges.

If the necessary supervision and management of tailings containment structures does not occur, the consequences can be catastrophic. The data on mine tailings failures worldwide is incomplete and approximate, making it difficult to identify with accuracy their frequency worldwide. However, it is clear that tailings dam failures continue to occur at unacceptable rates. According to one report, in the year 2000, two to five major tailings dams failures occurred and 35 minor failures. This represents an annual

[26] See, for example, Commissioner Michèle Goyer, hearing held 10 September 2014 (afternoon session), TRAN29, p. 27, line 1032; Commissioner Michèle Goyer, hearing held 10 September 2014 (afternoon session), TRAN30, p. 27, line 1039-1042.

[27] Canadian Nuclear Safety Commission, hearing held 10 September 2014 (afternoon session), TRAN29, p. 31, lines 1193-1197.

[28] Minister of Sustainable development, the Environment and the Fight against Climate Change, hearing held September 10, 2014 (afternoon session), TRAN29, p. 28, lines 1060-1063; Ministry of Sustainable Development, Environment and Parks (Quebec), "Directive 019 sur l'industrie minière. " (2012) Art. 2.1, Available online: <mddelcc.gouv.qc.ca/milieu_ind/directive019/directive019.pdf>.

probability of a failure of between 1 in 700 and about 1 in 1750. This can be compared with the annual probability of a conventional dam failing, which is roughly 1 in 10,000.[29]

In recent years, there have also been a number of disasters involving tailings management areas in Quebec, Canada and abroad. These incidents confirm that tailings management technologies are far from infallible. For instance, in 2008, 11 million litres of contaminants were released from the Opemiska Copper Mine near Chapais, Quebec, and in 2011, a series of incidents at the Lac Bloom Mine in Quebec released over 50 million litres of tailings water that affected 15 downstream lakes.[30]

Most recently in Canada, on August 4, 2014, Imperial Metals' Mount Polley gold and copper mine tailings dam in British Columbia was breached, spilling 20 million cubic metres of wastewater and more than four million cubic metres of sediment into the neighbouring Hazeltine Creek. The full extent of the environmental impacts of this incident are not yet known, but it is believed to be the largest tailings spill in Canadian history. The Mount Polley mine was in operation at the time of the breach. The B.C. Ministry of the Environment says it repeatedly warned Imperial Metals about the level of wastewater in the tailings pond at its Mount Polley mine prior to the devastating breach, yet the breach still occurred.[31] Hundreds of people living downstream were ordered to temporarily not drink or bathe in the water. Tests have shown that sediment at the mouth of the Hazeltine Creek exceeded regulated copper and iron levels.[32]

With regard to uranium tailings dam failures, one particularly catastrophic event occurred at the United Nuclear Corporation's Church Rock uranium mill tailings dam in 1979 in New Mexico, USA.[33] The tailings pond was breached, resulting in over 1,000

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[29] M.P. Davies, T. E. Martin, et al., "Mine Tailings Dams: When Things Go Wrong" in *Tailings Dams 2000*, (Las Vegas: Association of State Dam Safety Officials, U.S. Committee on Large Dams, 2000) at pp. 263, 266 [*When Things Go Wrong*]. Available online: <http://www.infomine.com/library/publications/docs/Davies2002d.pdf >.

[30] Maura Forrest. "Tailings Dams 'Have Not Breached,' Says Minister... Except When They Have", *The Tyee* (15 August 2014) Available online: <thetyee.ca/News/2014/08/15/Tailings-Dams-Have-Not-Breached/>; see also WISE Uranium Project, "Chronology of uranium tailings dam failures" (last updated 19 Nov 2012), Available online: <wise-uranium.org/mdafu.html> and WISE Uranium Project, "Chronology of major tailings dam failures (from 1960)" (last updated 6 Aug 2014), Available online: <wise-uranium.org/mdaf.html>.

[31] Jenni Sheppard, "Mount Polley mine tailings pond breach followed years of government warnings", CBC News (5 August 2014) Available online: <cbc.ca/news/canada/british-columbia/mount-polley-mine-tailings-pond-breach-followed-years-of-government-warnings-1.2728591>.

[32] "Mount Polley spill spurs CNSC order to check uranium ponds", CBC News (19 August 2014). Available online: <cbc.ca/news/technology/mount-polley-spill-spurs-cnsc-order-to-check-uranium-ponds-1.2740589>; see also: Gordon Hoekstra, "49 dangerous events tracked at B.C. mine tailing ponds" *The Times Colonist,* (26 August 2014) Available online: <timescolonist.com/news/b-c/49-dangerous-events-tracked-at-b-c-mine-tailing-ponds-1.1329169>

[33] Paul Robinson, hearing held 10 September 2014 (evening session), TRAN30, p. 63, lines 2454-2482; See also : Paul Robinson, "Environmental Issues and Challenges associated with Uranium Exploration

tons of solid radioactive mill waste and 93 gallons of acidic, radioactive tailings solution flowing into the Puerco River, with contaminants travelling 130 kilometres downstream to Navajo Country, Arizona, and into the lands of the Navajo Nation. Four decades of remediation efforts at the site have followed this spill.[34]

These technological failures demonstrate how little is known about engineering appropriate solutions for isolating and containing uranium tailings, and how crucial it is to exercise a high degree of caution in light of this uncertainty.

It is not just engineered solutions that raise questions and uncertainties. Even the preferred "natural" solutions present a host of issues. Beside the fact that this method requires a suitable pit to be available prior to mining, which is not available in Quebec, the most glaring challenge relating to this method of containment is the total lack of experience with it in the medium- or long-term. The existing understanding of such "natural" solutions is purely theoretical – no mining company has had sufficient experience over a sufficient period of time to be able to say with any certainty that these containment technologies will in fact function in the way they are designed to function. To the contrary, the theoretical successful functioning of natural solutions is based entirely on models.

In theory, the "natural" solution of backfilling an open-pit mine is preferred over an engineered solution because the tailings management site will, it is said, become "passive" over time – that is, the containment system will eventually not require constant monitoring and management.[35] The success of this method depends on the consolidation of the tailings at the base of the pit. However, while tailings may consolidate significantly, they will not become as consolidated as the native rock surrounding them. They will therefore remain more permeable than the unblasted, uncrushed rock around the tailings.[36]

Further, for an indeterminate period of time, this containment method relies on an engineered pumping system that drains water from the base of the pit. This pump is required until the water is "conditioned" to by-pass the consolidated tailings at the base of the pit. Until sufficient conditioning has occurred, the site requires monitoring and the pump requires maintenance. The time frame over which the expected conditioning will

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and Uranium Mill Tailings : Invited Statement. (Southwest Research and Information Center : Albuquerque, 2014) Available online at : <bape.gouv.qc.ca/sections/mandats/uranium-enjeux/documents/INFO13_Annexe.pdf>.

[34] Judy Pasternak. "Yellow Dirt: A Poisoned Land and a People Betrayed." (Free Press: New York, 2010), p. 149;

[35] Canadian Nuclear Safety Commission, hearing held September 10, 2014 (evening session), TRAN30, p. 28, lines 1068-1085.

[36] Paul Robinson, hearing held 9 September 2014 (evening session), TRAN30, p. 66, lines 2608-2621

occur remains unknown. Until the tailings become consolidated, ongoing maintenance and supervision will be required.[37]

Furthermore, it must be acknowledged that there is no actual proof that this passive tailings containment method will work – it is untested, new technology.[38] As the CNSC has admitted, there are no examples of sites where the pumps have been successfully removed and the site has become passively operational.[39] Indeed, the body of existing experience with the decommissioning of uranium tailing containment areas employing the "natural" approach is limited to a single case, the Cluff Lake mine, which entered decommissioning merely a decade ago.

b. The data used to create models is limited and insufficient, casting doubt on the reliability of resulting predictions

Predictions of future geological, hydrological and climatological conditions, as well as the future behaviour of engineered or natural containment solutions, are based on models. These models predict the behaviour of the surface and underground water, the natural evolution of the soil and the conditioning of contaminated materials. Modelling predictions, based on historical experience and observations, allow an estimate to be made of how long an engineered structure is likely to perform according to expectations. They also lead to predictions about how long it will take for "naturally" contained uranium tailings to become stable, and therefore require minimal monitoring. A monitoring and maintenance plan is then devised based on the assumption that the models are accurate.

However, decisions based on models are bound to a range of variables and uncertainties. One significant flaw in the use of models to predict the future stability of uranium tailings management areas is that all models are based on observations that have been recorded only recently, over the past decades or a century at most. This timeline is extremely limited in light of the length of time for which predictions are to be made. The problem is exacerbated by the future impact of global warming which was, until recently, a relatively unknown concept. In Québec, in the area north of the 50th parallel where many uranium projects would be located, precipitation is predicted to increase between 5 and 10 per cent a year.[40]

A number of contemporary Canadian examples highlight the inadequacy of the models upon which the design of tailings containment structures are based. At the Key Lake

[37] Paul Robinson, hearing held 9 September 2014 (evening session), TRAN28, p. 66, lines 2608-2611

[38] Commission Joseph Zayed, hearing held 10 September (evening session), TRAN30, p. 43, lines 1685-1687

[39] Exchange between Commissioner Michèle Goyer and the Canadian Nuclear Safety Commission, hearing held September 10 (evening session), TRAN30, p. 29, lines 1089-1137.

[40] Ouranos, Adapting to Climate Change, (Montreal: 2004) at p. 9

and Rabbit Lake facilities in Saskatchewan, models of the isolation and containment methods did not properly account for the severe winters common to the region. As a result, adequate consolidation of the tailings was not achieved due to formation of ice within the tailings during the winter.[41] At the Clinton Creek mine site, in central Yukon, initial site observations suggested that neither seasonal frost movements nor permafrost thaw potential were of significant concern. As a result, these variables were not included in the modelling on which designs were based. Despite this initial assumption, during construction, segregated ice, in the form of large crystals and thick lenses in alluvial valley deposits and near surface bedrock, was commonly encountered in undisturbed ground. This led to the instability of the foundation and slope at the mine.[42]

Clinton Creek mine site is a good example to illustrate how crucial the initial assumptions used in design considerations are to the long-term stability of the mine site. Clinton Creek Mine was constructed in the 1960's and 70's. At that time, most mining engineers assumed permafrost would remain permanently frozen forever. Permafrost thaw settlement was not considered to be a significant design consideration. Documented slumping at this site is extensive as a result of thawed ice-rich soils, and the tailings remain unstable.

Proponents rely on models to make predictions about future conditions and behaviours, and to assure regulatory bodies and the public about the safety and durability of long-term isolation and containment solutions. However, when the models used to make such predictions are flawed, the predictions become unreliable and raise a number of questions that cannot be adequately answered.

c. The inadequacy of funds set aside for technological failures compounds uncertainty about who will be responsible for damages caused by technological failures

The use of flawed models to answer the important questions relating to long-term stewardship presents enormous challenges. These challenges are compounded by the inadequacy of funds set aside to cover the damages caused by unforeseen events and technological failures. While this topic is addressed in greater detail later in these submissions, the uncertainties and risks associated with the inadequacy of these funds are worth mentioning in this context.

In the case of long-term management of uranium tailings, the proponent of the mine will likely have ceased to exist at the point in time that damages arise. While existing

[41] Canadian Nuclear Safety Commission, Demande d'information no.18, GEST9, p. 2; International Atomic Energy Agency, "The long term stabilization of uranium mill tailings: Final Report of a co-ordinated research project, 2000-2004", (Vienna: August 2004), p. 61. Available online: <http://www.iaea.org/inis/collection/NCLCollectionStore/_Public/36/023/36023911.pdf>

[42] Mining Environment Research Group (Government of Yukon), "Permafrost Considerations for Effective Mine Site Development In the Yukon Territory", (Whitehorse: 2004). Available online: <geology.gov.yk.ca/pdf/MPERG_2004_1.pdf>.

regulatory regimes in Canada and Quebec require proponents to provide financial guarantees to cover the costs of initial decommissioning and remediation of the site, proponents are not required to set aside sufficient funds to cover the costs of stewardship over the medium-term, and the regulatory regimes generally make no provision for the financial obligations relating to long-term stewardship.

The inadequacy of funds to cover long-term maintenance and unforeseen disasters and technological failures raises important questions about who will ultimately bear the burden of cleaning up these sites. As the representative of the Ministry of Energy and Natural Resources conceded during the BAPE hearings, the responsibility ultimately falls to the province.[43] The concern of the Cree Nation is that when the government fails to step in or otherwise limits its intervention, the local community will be left with no choice but to assume the responsibility for these sites, or to suffer the health and environmental consequences of unremediated tailings sites.

III. Serious long-term institutional challenges remain unaddressed

While the long-term character of the stewardship required for uranium tailings creates unique technological challenges, there are also long-term institutional challenges which remain unaddressed under current regulatory structures, and which increase the risk – and the burden – for local communities and future generations.

From the perspective of the local communities who must live with the tailings, the major challenge is the inability to predict and manage future changes in government and governmental priorities. The provincial government retains responsibility for uranium mining and/or processing sites, including the tailings management areas, once the mining company has been released from its liabilities (or has ceased to exist). Even though particular (and limited) funds may be earmarked for long-term monitoring and maintenance of the former uranium mine or processing site, the designation of such funds is ultimately at the discretion of the provincial government.

Another important practical challenge associated with the time period over which uranium tailings must be managed is the potential loss of institutional memory and the special skills required to maintain engineered structures. The successful execution of stewardship, in the short and longer term, requires a range of special skills and knowledge frequently akin to those required for the original operations at the site in question. Many components of tailings management are labour and maintenance intensive and require the attention of people with appropriate skills and site-specific knowledge. The loss of institutional memory and skills creates even greater uncertainties in the longer term. There is no guarantee that resources will be available to maintain, upgrade, or repair the site or its structures over the short, medium or long term.

[43] Ministry of Energy and Natural Resources (Quebec), M. Roch Gaudreau, hearing held 9 September 2014, TRAN27, p. 43, lines 1689-90, p. 83, lines 3211-14.

E. THE INSUFFICIENCY OF FINANCIAL GUARANTEES RAISES SERIOUS CONCERNS ABOUT WHO WILL BE RESPONSIBLE FOR TECHNOLOGICAL FAILURES AND UNFORESEEN EVENTS

> The period of time for which the company is expected to be responsible for monitoring the site is based on: the stability of the site, the nature of the contaminants and whether or not the contaminants and the site are behaving according to the models and projections previously reviewed and accepted by the department. Only after the decommissioning and reclamation activities have been carried out in an approved manner, with sufficient post-decommissioning and reclamation monitoring to confirm that the site is both chemically and physically stable, will the department consider the request by a company to be released from further decommissioning and reclamation requirements. The expectation of the Province is that, once a company has met all of the decommissioning objectives including the post-decommissioning monitoring and has demonstrated that the site is both chemically and physically stable, that a release would be granted from both further decommissioning and reclamation requirements and from ongoing financial assurance responsibility.[44]

This section focusses on the process by which a project is released from the jurisdiction and control of the CNSC and entered into an Institutional Control Program. This process is characterized by a significant lack of transparency, and gives rise to persistent uncertainty regarding how and at what point uranium mines and mills are expected to be released from the CNSC's control and turned over to the provinces. There are even more questions raised by the (in)sufficiency of funds required to be set aside to cover the costs of monitoring and maintaining the site, as well as the costs associated with remediation in case of unforeseen events. The insufficiency of these funds provokes legitimate concerns regarding who will ultimately be responsible for cleaning up these sites when the money runs out.

I. The decommissioning and abandonment licensing process is characterized by a lack of transparency

With respect to uranium mines and mills, CNSC regulation consists of issuing licenses to proponents and supervising their activities at the various stages of a project's lifecycle, including a license to decommission a site and, ultimately, according to the terms of the law, a license to abandon the site, which releases the proponent and the site from regulatory oversight.

The long-term objective of decommissioning is to leave the site in a state that is physically safe and provides secure, long-term storage of contaminants with no unacceptable predicted future environmental impacts.[45] To this end, it is expected that

[44] B.E. Sigurdson, R.C. Snider and M.R. Bilokury, "Issues and considerations on the development of an institutional controls policy for uranium mines within Northern Saskatchewan" (2002) paper delivered to the International Conference on Issues and Trends in Radioactive Waste Management, Vienna, Dec 9-12 (IAEA –CN--90), at p. 2.

[45] K. Scissons, D.M. Schryer, W. Goulden, C. Natomagan, "The Canadian Nuclear Safety Commission regulatory process for decommissioning a uranium mining facility" (2000) paper delivered to the

once decommissioning is complete, long-term control and maintenance will be minimal.[46] It is for this reason that decommissioning is extremely important. It requires clear legislation and guidelines and transparent implementation of those guidelines.

However, regulations issued pursuant to the *Nuclear Safety and Control Act* (NSCA) provide no clear guidance regarding the process by which a licensee is to be released from all or part of a decommissioning license or be permitted to abandon a property altogether.[47] As a result, tremendous uncertainty and many unanswered questions remain regarding the decommissioning and abandonment of uranium mining and milling sites. This uncertainty gives rise to significant and legitimate concerns regarding who in fact will be responsible for the site, and the extent of that responsibility.

An overview of the CNSC decommissioning and abandonment process and Saskatchewan's Institutional Control Program (ICP) highlights some of the challenges of the current system.

When a uranium mine and or mill has reached the end of its operations, the proponent applies for a license to decommission the site. Once a site has been decommissioned – that is, once it has been determined that the site is "stable" and does not present "radiological risks" – a proponent will be released from CNSC jurisdiction into Saskatchewan's ICP.

Following decommissioning, the proponent is eligible under the NCSA for a "license to abandon", which essentially amounts to a release from CNSC licensing and jurisdiction. There is very little transparency around this licensing process. Although a license to abandon is available under the terms of the NCSA, such a license has never actually been issued to a uranium mining or milling facility, and it is unclear how and under what circumstances it would be issued. The CNSC's actual manner of proceeding in all existing cases of decommissioned uranium facilities has been to issue an exemption from licensing to the particular site once decommissioning was completed. The Beaverlodge Mines in Saskatchewan, for instances, were granted an "exemption" and then transferred into Saskatchewan's ICP.[48]

International Symposium on the Uranium Production Cycle and the Environment, Vienna, 2-6 Oct (IAEA-SM-362/53) at p. 3.

[46] Canadian Nuclear Safety Commission, "Record of Proceedings, including Reasons for Decision in the matter of Cameco Corporation's Application to Renewal Waste Facility Operating Licence at Decommissioned Beaverlodge Mine and Mill Site, April 3-4, 2013," at para 56.

[47] B.E. Sigurdson, R.C. Snider and M.R. Bilokury, "Issues and considerations on the development of an institutional controls policy for uranium mines within Northern Saskatchewan" (2002) paper delivered to the International Conference on Issues and Trends in Radioactive Waste Management, Vienna, Dec 9-12 (IAEA –CN--90), at p. 2.p.4

[48] *Nuclear Safety and Control Act*, SC 1997, c 9, s. 7; *General Nuclear Safety and Control Regulations, SOR/2000-202,* s. 11; Canadian Nuclear Safety Commission, *Record of Proceedings, including Reasons for Decision in the Matter of Cameco Corporation's Application to Renew the Beaverlodge Mine and Mill Site Waste Facility Operating Licence and to Exempt Five Decommissioned Sites*, February 18, 2009.

Once an exemption has been granted by the CNSC, it is unclear who has jurisdictional control of the site. For instance, during the most recent hearings for a renewal of the Waste Facility Operating License for one of Cameco's Beaverlodge sites, CNSC staff acknowledged that

> once properties have been transferred to the province of Saskatchewan, the CNSC would no longer have federal regulation over the property. However, CNSC staff added that under the ICP, annual reports are produced and made available to the public whereby the CNSC would continue to monitor the environmental and remedial aspects of the transferred properties.[49]

There is a clear inconsistency in the above statement regarding the transfer of jurisdiction from the CNSC to the province and the CNSC's continued interest in the site.

This inconsistency and lack of clarity regarding jurisdictional control and responsibility is particularly concerning in light of the environmental risks presented by uranium tailings and the enormous costs that may be incurred in the event of an unexpected problem. Who is responsible if the site presents radiological risks after it has been "exempted" by the CNSC and thereby transferred to the provincial government under an institutional control program? This uncertainty increases the potential for jurisdictional disputes regarding liability.

Further, it was highlighted during the hearings that there are significant and unresolved inconsistencies between the Government of Saskatchewan and the CNSC regarding their plans and expectations concerning the Cluff Lake site, the first and only modern uranium mine to undergo the decommissioning process to date. When the CNSC representative was asked by an intervenor when it expected the Cluff Lake site to be fully decommissioned and to enter into the ICP, the CNSC's response was that it would not occur in the foreseeable future. However, the Government of Saskatchewan stated that in its view the Cluff Lake site was on track to be fully decommissioned and entered into the ICP by the end of its current license, in 2019.[50] When confronted with this inconsistency, the CNSC's representative could not deny that it was possible that Cluff

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Available online: http://nuclearsafety.gc.ca/eng/the-commission/pdf/2009-02-18-Decision-Cameco-Beaverlodge-e-Edocs3350132.pdf Government of Saskatchewan, *Institutional Control Registry Report* (Saskatchewan: April 2012) at p. 2-6. Available online: http://www.economy.gov.sk.ca/ICR-Report-March2012.

[49] Canadian Nuclear Safety Commission, "Record of Proceedings, including Reasons for Decision in the matter of Cameco Corporation's Application to Renewal Waste Facility Operating Licence at Decommissioned Beaverlodge Mine and Mill Site, April 3-4, 2013" at para 56.

[50] Government of Saskatchewan, Keith Cunningham, Corey Hughes and Tim Moulding (responses to questions), hearing held 22 September 2104 (afternoon session), TRAN48, pp. 120-21, lines 4800-20.

Lake would enter into ICP by 2019.[51] This inconsistency raises questions regarding the standard applied by the CNSC in releasing decommissioned sites from its jurisdiction.

The added challenge is that apart from Saskatchewan, the provinces do not have adequately trained personnel to deal with the specialized issues relating to uranium tailings management.[52] Quebec's lack of experience was clear during the hearings, when representatives from various ministries repeatedly acknowledged that they were not equipped to handle particular aspects of uranium development, and would look to Ottawa for assistance.[53]

This lack of experience is further evidenced by the fact that the Government of Quebec has not taken steps towards developing an effective institutional control program for decommissioned mining sites, despite having just revamped the *Mining Act*. The government's apparent intention to treat uranium mines like all other mines is evident from the similar treatment they receive under the new *Mining Act*. To this end, the representative of the MERN admitted during the hearings that the funds set aside for decommissioning of mining sites only reflect an evaluation of costs over a number of decades.[54] This timeframe may be appropriate for the majority of mines, but is evidently inadequate for uranium mine sites, in light of the long-term radiological liabilities they present.

II. The financial guarantees required by regulatory bodies are insufficient

a. Unsound cost assessments of long-term stewardship lead to uncertainties over responsibility for overruns

It was clear from the Phase II hearings that there are a number of unanswered questions surrounding the financial guarantees set aside for the anticipated decommissioning and long-term management of uranium mines and mills. Despite the unique long-term risks associated with uranium mines, the financial guarantees required by regulators are insufficient, particularly because they make insufficient or no provision for the extremely long time period over which stewardship responsibilities will continue.

[51] Canadian Nuclear Safety Commission, Jean Leclair, hearing held 22 September 2014 (evening session), TRAN49, p. 6, lines 200-232, p. 8, lines 300-04.

[52] Ministry of Energy and Natural Resources (Quebec), M. Roch Gaudreau, hearing held 4 September 2014 (morning session), TRAN22, p. 16, lines 593-608.

[53] Ministry of Energy and Natural Resources (Quebec), M. Roch Gaudreau, hearing held 4 September 2014 (morning session), TRAN22, p. 16, lines 604-608.

[54] Ministry of Energy and Natural Resources (Quebec), M. Roch Gaudreau, hearing held 9 September 2014 (afternoon session), TRAN27, p. 43, lines 1675-81.

In this vein, in the fall of 2012, the Auditor General of Canada raised concerns that the amount that federal entities are currently collecting for financial assurances may not be sufficient. The Auditor General wrote:

> Federal entities lack information to know if the assurances received are sufficient to cover the financial risks of projects, such as the cost of decommissioning and reclamation. We noted that Aboriginal Affairs and Northern Development Canada did not compare, on a regular basis, whether the financial securities obtained during the life of a mine are sufficient to meet the cost of reclamation of land and water.[55]

Provincially, the situation is no better. In Quebec, pursuant to the new *Mining Act*, proponents are required to furnish a guarantee covering the anticipated cost of completing the work required under the rehabilitation and restoration plan that must be submitted prior to commencing mining activities.[56] The guarantee is therefore calculated based on the specifics of a particular project and based on assumptions about what that project will entail and how the site will be remediated. [57]

There are a number of uncertainties regarding the guarantees required under the new *Mining Act*. For one, such guarantees are designed to cover "foreseeable" or "anticipated" costs of remediation. There is no allowance for unforeseeable events such as flooding or dam failures. Such unforeseeable events could possibly cause extensive damage and require extensive remediation. They must be considered when determining the financial guarantee set aside for rehabilitation and restoration. The flooding at Cigar Lake Mine in 2006 and 2008, for instance, caused extensive damage. While impossible to foresee, such events do occur, and it is necessary to have funds set aside to ensure that the state and local communities are not ultimately left with responsibility for the resulting costs.

In addition, the financial guarantees collected from mining companies under the existing federal and provincial regulatory regimes do not take into account the costs associated with long-term stewardship in the medium and long-term, but rather focus on short-term remediation and restoration. To this end, during the BAPE hearings in Mistissini, the CNSC and the MERN were asked whether long-term supervision costs were considered when the CNSC and the MERN determined the amount of the financial guarantee that the mining company was required to set aside for decommissioning and rehabilitation of the site, and, if so, over what time period.[58] This question was repeated a number of times during the Phase II hearings. Eventually, the MERN confirmed that the costs were

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[55] Office of the Auditor General (Canada), "Financial Assurances for Environmental Risks" in *Report of the Commissioner of the Environment and Sustainable Development – Fall 2012*, (Ottawa: 2012), Available online: <oag-bvg.gc.ca/internet/docs/parl_cesd_201212_02_e.pdf>.

[56] In Quebec, decommissioning is referred to as rehabilitation and restoration.

[57] *Mining Act*, CQLR c M-13.1, ss. 232.4, 232.7.

[58] Question posed by intervenor Natai Shelsen, hearing held 6 September 2014 (morning session), p. 24, lines 915-921.

only calculated over a few decades at most.[59] The CNSC, on the other hand, failed to answer the question altogether. This lack of transparency is very troubling. It would appear that the timeframe over which these costs are calculated is entirely too short, and does not adequately correspond to the long-term stewardship challenges created by uranium mining.

Ultimately, a mining company can only be held responsible for the environmental consequences of its operations as long as the company exists,[60] after which the state will have no choice but to assume responsibility.[61] The real and contemporary nature of this risk is underscored by the recent experience with RB Energy Inc.'s Quebec Lithium mine, which would have been Canada's first lithium mine. The company closed its operations in October 2014 without having paid the financial guarantee required under the *Mining Act*. Because of its poor financial situation, it was unable to meet its legal and financial obligations and filed for bankruptcy protection. The question remains as to who will pay to restore the site, where the mine was already fully built and production had begun.[62]

b. The financial guarantees required to cover unforeseen events are insufficient

It is imperative that special funds be allocated to cover the costs associated with unforeseen events, such as acts of God, failure of a containment dyke, pit wall collapse, shaft cover degradation and change in regulatory requirements. No program or policy presently exists in Quebec to provide for such costs.

Saskatchewan's ICP program was mentioned on several occasions during the hearings as a model. The ICP includes an Institutional Control Unforeseen Events Fund, the purpose of which is to is to cover unanticipated maintenance and monitoring obligations that are not covered by the Institutional Control Monitoring and Maintenance Fund. According to the Government of Saskatchewan, "the contribution to the [Institutional

[59] Ministry of Energy and Natural Resources (Quebec), M. Roch Gaudreau, hearing held 9 September 2014 (afternoon session), pp. 42-43, lines 1640-1690.

[60] Ministry of Energy and Natural Resources (Quebec). M. Roch Gaudreau, hearing held 4 September 2014 (morning session), p. 19, lines 735-750.

[61] Ministry of Energy and Natural Resources (Quebec). M. Roch Gaudreau, hearing held 9 September 2014 (afternoon session), p. 43, lines 1689-90.

[62] Alexandre Shields, "Un projet jugé prometteur s'effondre", *Le Devoir* (22 October 2014), available online: <ledevoir.com/environnement/actualites-sur-l-environnement/421688/mine-quebec-lithium-un-projet-juge-prometteur-s-effondre>; "Restauration de la mine Québec Lithium : le compte est vide", Radio Canada (21 October 2014) available online: <http://ici.radio-canada.ca/regions/abitibi/2014/10/21/002-quebec-lithium-sommes-restauration-mine-rb-energie-la-corne-abitibi.shtml>; Peter Koven, "RB Energy meltdown highlights tough times for lithium, rare earth firms", *Financial Post* (17 October 2014), available online: <http://business.financialpost.com/2014/10/17/rb-energy-meltdown-highlights-tough-times-for-lithium-rare-earth-firms/>

Control Unforeseen Events Fund] must be of sufficient value to generate revenue to pay the costs of future unforeseen events and release a site holder from a financial assurance requirement."[63]

However, the amounts set aside for "unforeseen events" in Saskatchewan are negligible. For a closed site without tailings or engineered structures, the proponent must set aside 10% of its contribution to the Institutional Control Monitoring and Maintenance Fund. For a closed site with tailings or engineered structures (such as uranium mines), the proponent must set aside 20%. The difference is based on the assumption that a site with an engineered structure presents twice the risk of a site without a structure.[64]

So far, six sites, including five former uranium mine sites, have been placed into Saskatchewan's ICP program. In its most recent report, Cameco, the former owner of all six sites, was required to set aside $170,151.50 cumulatively for institutional control, and $27,922.50 for unforeseen events.[65] These amounts are negligible in light of the costs associated with recent unforeseen events, such as the Mount Polley dam failure.

c. The ultimate responsibility falls on the state and the local communities

In light of the insufficient amounts required to be set aside by uranium mining companies for long-term control and maintenance and unforeseen events, and the limited lifespan of mining companies, there is a significant risk that the ultimate burden of these costs will be borne by the government and local communities. There are no adequate mechanisms to ensure that the public in general, and local communities in particular, are not stuck with the bill for serious risks relating to uranium tailings that may materialize decades or centuries after the mining profits have been made and the mining companies have ceased to exist. This ultimate responsibility of the state was acknowledged by the representative from the Ministry of Energy and Natural Resources during the BAPE hearings.[66]

There are already too many examples of abandoned sites in Canada which have become the responsibility of the state. In Quebec, for instance, a 2012-2013 report of the Auditor General estimated that the environmental liability for abandoned mines in

[63] Ministry of Energy and Resources (Saskatchewan), "Institutional Control Program: Post closure management of decommissioned mine/mill properties located on crown land in Saskatchewan" (Regina: December 2009) at p. 10.

[64] Ministry of Energy and Resources (Saskatchewan), "Institutional Control Program: Post closure management of decommissioned mine/mill properties located on crown land in Saskatchewan"(Regina: December 2009) at p. 10.

[65] Government of Saskatchewan, "Institutional Control Program – Report" [Cameco Corporation, Contact Lake Mine] 2 April 2012, Available online: http://economy.gov.sk.ca/ICR-Report-March2012.

[66] Ministry of Energy and Natural Resources (Quebec). M. Roch Gaudreau, hearing held 9 September 2014 (afternoon session), p. 43, lines 1689-90.

Quebec had risen from $264 million in 2008 to a whopping $1.19 billion as of March 2012.[67]

By way of further example, in 1999, the federal government assumed responsibility for remediation of Giant Mine, Colomac and Tundra, three former gold mines in the Northwest Territories when the owner, Royal Oak Mines Inc., went into receivership. Since 2005, these three properties have cost Canadians over $357.4 million dollars for remediation, care and maintenance.[68] Giant Mine alone is expected to cost hundreds of millions more. The initial estimated cost for remediation was $488 million but in 2013 this estimate ballooned to almost a billion dollars.[69]

The Faro mine in the Yukon is also estimated to consume hundreds of millions of dollars in public funds. This former lead and zinc mine went into receivership in 1998. Between 2006 and 2014, over $180 million dollars have been spent[70] and the total estimated cost is $700 million although this figure is "subject to change".[71] Even after remediation is complete, the federal government will retain some residual financial responsibility for the site in perpetuity.[72]

The Cree Nation is all too familiar with the problem of abandoned and unremediated mining and exploration sites. According to the MERN, there are 17 abandoned and

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[67] Auditor General of Quebec, "Suivi d'une vérification de l'optimisation des ressources : Interventions gouvernementales dans le secteur minier" (Quebec : 2013) Available online : <vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2012-2013-CDD/fr_Rapport2012-2013-CDD-Chap07.pdf>.

[68] Treasury Board Secretariat, Federal Contaminated Sites Inventory (online database), Site C1048001-Giant Mine (Giant Yellowknife Mines; Royal Oak Mines; A, B & C Shafts), Available online: <tbs-sct.gc.ca/fcsi-rscf/home-accueil-eng.aspx>; Treasury Board Secretariat, Federal Contaminated Sites Inventory (online database), Site C1047001-Colomac Mine (Baton Lake; Indin Lake; Goldcrest; Grizzly Bear), Available online: <tbs-sct.gc.ca/fcsi-rscf/home-accueil-eng.aspx>; Treasury Board Secretariat, Federal Contaminated Sites Inventory (online database), Site C-1035001-Tundra-Taurcanis Mine (Bulldog Yellowknife Gold Mines; Tamcanis Mines Limited; Tundra Gold Mines) Available online: <tbs-sct.gc.ca/fcsi-rscf/home-accueil-eng.aspx >.

[69] Bob Weber, "Giant Mine's high cleanup bill shakes up policy on toxic sites", *The Globe and Mail*, (1 April 2013 [updated 2 April 2013]), Available online: <theglobeandmail.com/news/national/giant-mines-high-cleanup-bill-shakes-up-policy-on-toxic-sites/article10659731/>.

[70] Treasury Board Secretariat, Federal Contaminated Sites Inventory (online database), Site C2503001-Faro Mine, Available online: <tbs-sct.gc.ca/fcsi-rscf/home-accueil-eng.aspx>.

[71] Faro Mine Remediation Project, Frequently Asked Questions, (Whitehorse: 2011), Available online: <faromine.ca/reference/faq.html>.

[72] Indian and Northern Affairs Canada, "Northern Contaminated Sites Program - Progress Report 2005-2010" (Ottawa: 2010) at p. 9, Available online: <aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/nth_ct_ncsp_csrep0510_1318949021276_eng.pdf>.

contaminated mine sites and 213 abandoned exploration sites in Eeyou Istchee.[73] Some of these sites have been abandoned for decades and have yet to be inspected and secured by the government, meaning that the full extent of contamination and environmental damage remains unknown. Such abandonment issues are not unique to historical mines.[74]

In light of the uncertainties around jurisdiction of former mine sites, there remains a real risk of jurisdictional disputes between the federal and provincial governments if and when costly remediation obligations materialize. Such jurisdictional disputes between the federal and provincial governments have plagued the remediation planning in respect of legacy uranium sites, such as the Gunnar and Lorado uranium mine and mill sites in Saskatchewan, and contributed to the significant delays that have left these sites unaddressed to the present day.[75]

F. CONCLUSION

Eeyou Istchee is the People's Land, and we Eeyouch, the people, are its stewards. We must respect and protect the land which has sustained us for countless generations. Eeyou Istchee is at the core of who we are as Eeyouch.

Uranium development threatens our land. It threatens to contaminate the waters that run through it. It threatens to affect the health of the animals and the plant life. It threatens our own physical and mental health. Uranium waste promises to present risks for hundreds of thousands of years. We refuse to accept these serious risks, and we refuse to impose the burden of these risks on future generations.

In the short-term, uranium mining and tailings present serious health risks and environmental impacts. For us Crees who live off the land, our health, and the health of the animals, the plant life and the environment, are inextricably linked. Uranium mining, processing and waste emplacement presents well-known hazards, such as exposure to radon and other radionuclides, but the extent of health risks to local communities arising

[73] James Bay Advisory Committee on the Environment, *Mining Act (Bill 43): JBACE recommendations presented to the Committee on Agriculture, Fisheries, Energy and Natural Resources* (Quebec: September 2013) at p. 11, Available online: <http://www.ccebj-jbace.ca/english/publications/documents/JBACERecommendationsonBill43-Sept2013.pdf>.

[74] Ministre de l'Energy et des Resources Naturelles*, Liste des sites miniers abandonnés* (Quebec : 2012-2013). Available online: <http://www.mern.gouv.qc.ca/mines/restauration/restauration-sites-miniers-abandonnes.jsp#nordduquebec>

[75] Saskatchewan Northern Affairs, *News Release: Saskatchewan makes recommendations on former uranium mine sites*, February 4, 2004. Available online: <http://www.gov.sk.ca/news?newsId=d7f7fbbc-3da5-457c-adba-e8d251e17fbd>; Ian Peach & Don Hovdebo, *Righting Past Wrongs: The Case for a Federal Role in Decommissioning and Reclaiming Abandoned Uranium Mines in Northern Saskatchewan* (Saskatchewan: Saskatchewan Institute of Public Policy, 2003). Available online: <http://www.schoolofpublicpolicy.sk.ca/_documents/outreach_event_announcements/SIPP_archived_publications/SIPP_public_policy_papers/PPP21.pdf>

from uranium mining, processing and waste emplacement are not fully known or properly understood. Further, the available data confirms that uranium development is harmful to the mental health of local communities.

In the medium to long-term, uranium tailings present hazards that must be monitored for thousands of years. The local community will unavoidably be saddled with the burden of the legacy of uranium development. They will also be exposed, on a perpetual basis, to the risks presented by a potential breach or leak of a tailings management area. Imposing such a burden – the extent of which is truly unknown and immeasurable – on future generations is incompatible with Cree culture, values and way of life.

Further, uranium mining presents serious and insurmountable long-term technological and institutional challenges. Technologically, the durability of both engineered and natural methods of waste emplacement is uncertain at best. Further, the models used to predict the durability of these solutions rely on insufficient and time-limited data, raising serious questions about the reliability of the resulting predictions. Institutionally, there is no guarantee that funds set aside today for site monitoring and maintenance will not be designated for some other purpose by a future government with different priorities.

Finally, the insufficiency of financial guarantees raises serious concerns about who will be responsible for technological failures and unforeseen events. The guarantees currently required under provincial and federal regulatory regimes are completely insufficient to deal with a breach like Mount Polley, which could cost upwards of fifty million dollars to remediate. The ultimate responsibility falls on the public and the local community.

The Cree Nation's opposition to uranium exploration, extraction and waste emplacement has its foundation in our connection with and respect for the land and all that it has to offer. Our identity as Crees has been shaped by our relationship with the land. Development has changed much about our way of life, but our connection with the land has never faltered. For thousands of years, the land has sustained us economically, physically and spiritually. We have been, and will continue to be, its faithful stewards.

For these reasons, the Cree Nation has said NO to uranium development in Eeyou Istchee.

Map of Cree Traplines in Eeyou Istchee

Eeyou Istchee
JBNQA
Cree Family Traditional Territories
Administrative Region
Eeyou Marine Region

Roads
Cree Communities
Towns

0 10 20 40 60 80 100 Kilometers

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Grand Council of the Crees
ᐄᓅ/ᐄᔨᔫ ᒋᔐᐅᒋᒫᐤ
Cree Nation Government
May 2014

G.C.C.E.I.
est. 1974

C.R.A.
A.R.C.
est. 1978

GRAND COUNCIL OF THE CREE (EEYOU ISTCHEE)/ CREE REGIONAL AUTHORITY

Annual General Assembly

Resolution 2012-09

SUBJECT: EEYOU / JAMES BAY CREE NATION / EEYOU ISTCHEE PERMANENT URANIUM MORATORIUM

WHEREAS the Eeyou, the James Bay Cree Nation, has owned, lived in, governed and protected Eeyou Istchee for millennia and since time immemorial;

WHEREAS the Cree Nation possesses and exercises our inalienable fundamental aboriginal and other human rights, including the right of self-determination;

WHEREAS the economies, culture, way of life and well-being of Eeyou are inextricably tied to the land, the waters, the fish and animals, and all of the environment of Eeyou Istchee and adjacent lands and waters;

WHEREAS Eeyou have always carried out and affirmed our responsibility to protect the land, the waters, the fish and animals, and all of the environment of Eeyou Istchee, for all current and future generations;

WHEREAS Eeyou are committed to the principles of sustainable and equitable development and responsible stewardship;

WHEREAS uranium mining exploration activities have been pursued by other governments and corporations in recent years in Eeyou Istchee;

WHEREAS uranium exploration, mining, milling, refining and transport, and radioactive and toxic uranium mining wastes, create unique and grave risks for human health and the environment, both today and for thousands of future generations;

WHEREAS the risks inherent in uranium exploration, mining, milling, refining and transport, and in radioactive and toxic uranium mining waste, are incompatible with our stewardship responsibilities in Eeyou Istchee, and pose a grave threat to our way of life, economies, culture, and well-being;

G.C.C.E.I.
est. 1974

C.R.A.
A.R.C.
est. 1978

WHEREAS there are no independently established or objectively known ways to effectively mitigate these risks on the time-scales that are involved in uranium mining, milling, refining and transport, and in radioactive and toxic uranium mining waste, namely hundreds of thousands of years, and indeed there are grave doubts about these issues especially where they have affected other indigenous peoples in their lands and waters;

AND WHEREAS the people and the Cree Nation of Mistissini, the first Cree community located close to proposed uranium exploration and minibg, has expressed its total opposition to these activities and called upon the Grand Council of the Crees and Eeyou to support it in this opposition;

BI IT NOW THEREFORE RESOLVED THAT EEYOU, THE JAMES BAY CREE NATION:

1. Declares and enacts a Permanent Moratorium on all uranium exploration, mining, milling, refining, transport and uranium mining waste emplacement in Eeyou Istchee;

2. Authorizes and mandates the Grand Council of the Cree (Eeyou Istchee), the Grand Chief and the Board of the Cree Regional Authority to take all necessary and appropriate steps as may reasonably be required to ensure the full and immediate recognition and implementation of this permanent moratorium in Eeyou Istchee and to give effect to this Eeyou Assembly Resolution.

Proposed by: Johnny Tomatuk

Seconded by: Jane Blacksmith

Carried: August 8th, 2012

John Paul Murdoch, Corporate Secretary